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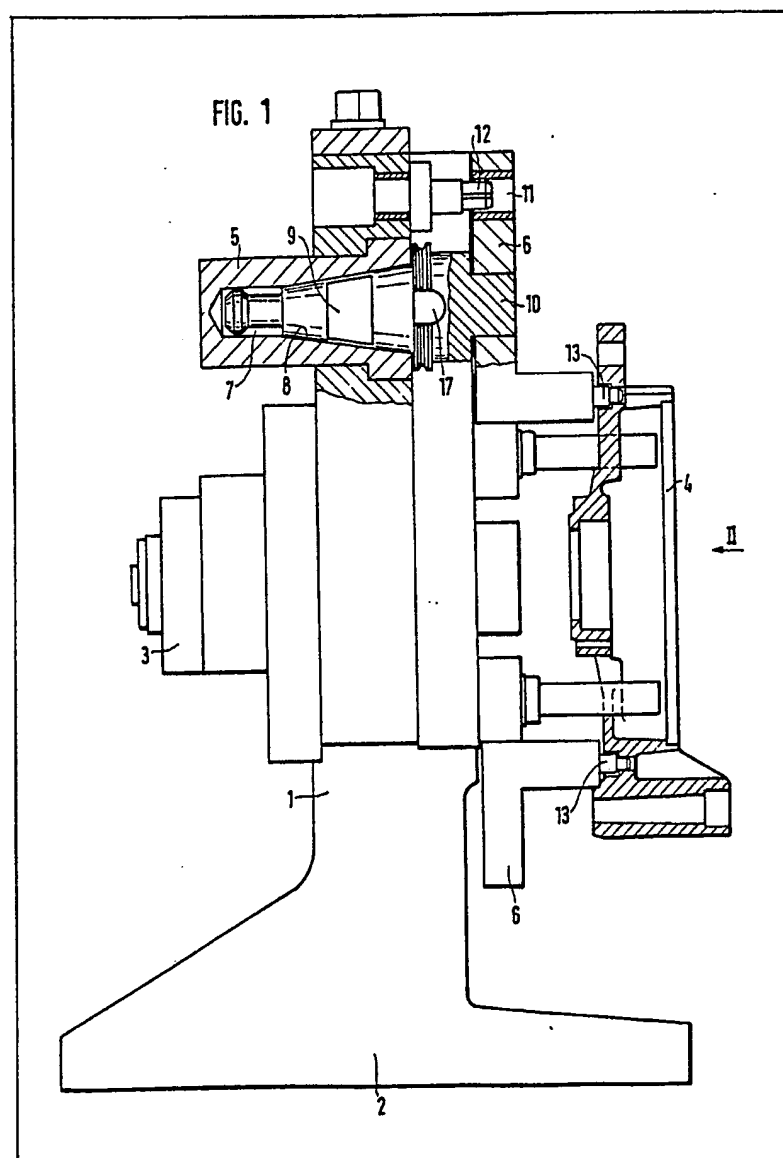
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(54) Apparatus for receiving workpieces

(57) The apparatus for receiving workpieces comprises at least one receiving cone 9, on whose journal 10 an interchangeable plate 6 is held. An indexing bolt 13 connected to the

interchangeable plate 6 on the end face and located in a predetermined position ensures that the workpiece 4 to be machined is received in the correct position. The apparatus allows a rapid exchange of the entire interchangeable device for different workpieces.



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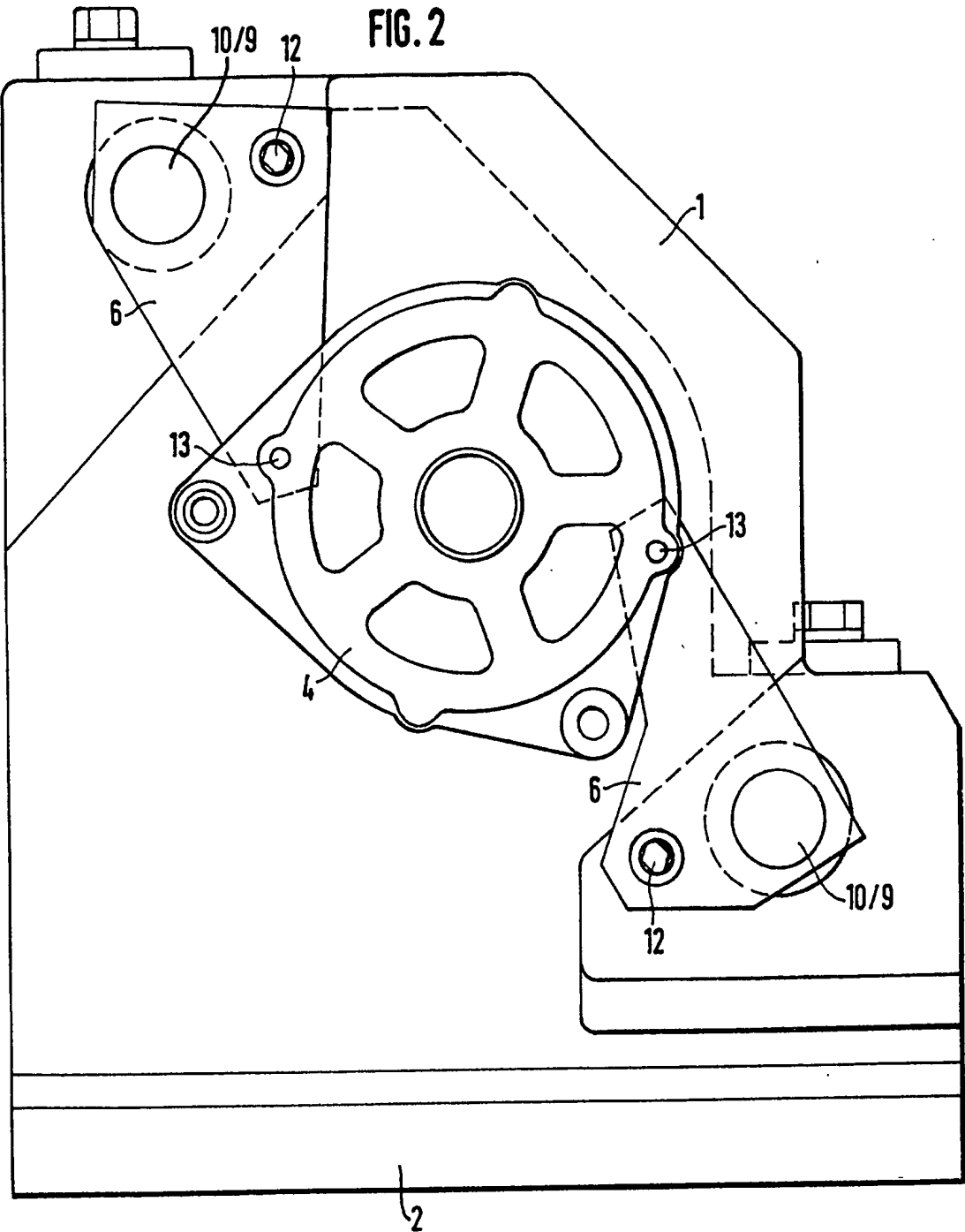
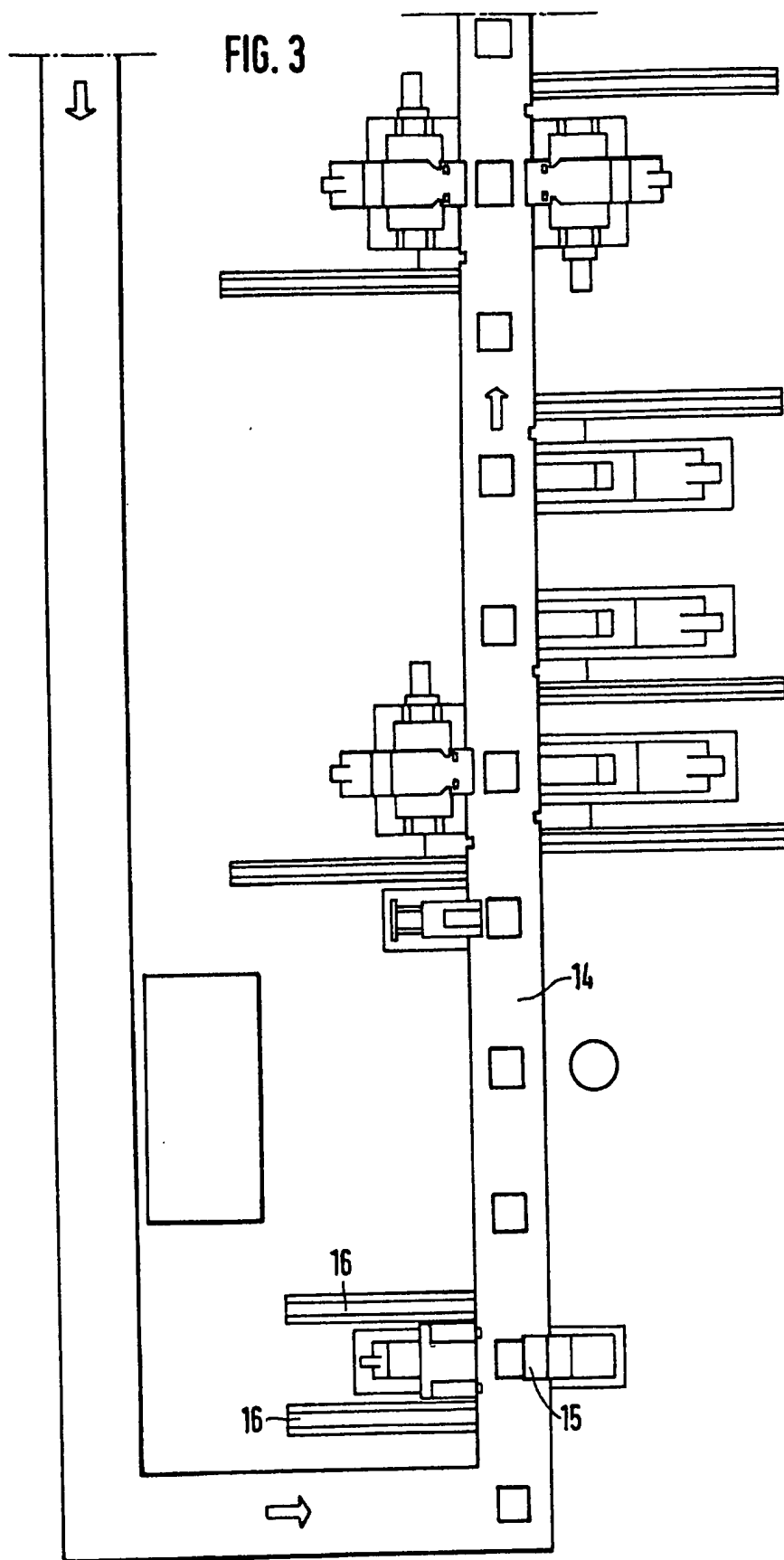


FIG. 3



SPECIFICATION

Apparatus for receiving workpieces

The invention relates to an apparatus for receiving workpieces for a processing machine, transfer line, machining centre or the like.

In the case of a machining centre or a transfer line, it is necessary that tools and drill heads can be exchanged fully automatically in the shortest possible time. Despite the quick-change parts used, the change-over of the workpiece holders for receiving new workpieces is time-consuming and expensive, disturbs the sequence of operations in machining centres and transfer lines and increases the stoppage times of machines to a considerable extent.

It is therefore the object of the invention to provide an apparatus of the afore-mentioned type, which with simple means allows a rapid change-over of a processing machine when changing the workpieces. This object is achieved according to the invention due to the fact that in a bore in the apparatus with a conically shaped part, a correspondingly constructed receiving cone can be inserted, which on its journal projecting from the end face of the apparatus comprises at least one fixture for receiving a workpiece to be machined in the correct position. When used according to the invention, the fixtures may be clamping shoes, fixing bolts, mounting pins, supports, bearing surfaces or similar parts. In a particular embodiment of the invention, an interchangeable plate is provided as the fixture, which is equipped with indexing bolts respectively located in a predetermined position. Due to this, in a simple and advantageous manner, the change of tools has been transferred from tool magazines of machining centres or transfer lines to a so-called fixture changer.

Instead of the tedious changing of tools, according to the solution of the invention, solely a receiving cone with attached interchangeable plate is removed from the apparatus and a new receiving cone with a new interchangeable plate provided with an appropriately positioned indexing pin is inserted in the apparatus. The tools remain in the processing machine and no longer need to be set to the new co-ordinates.

In order that the interchangeable plate with the indexing bolt is not moved out of its central position with respect to the receiving cone, in one embodiment of the invention, a second bore can be provided in the interchangeable plate, in which a fitted bolt engages to prevent rotation.

Furthermore, the receiving cone can be clamped by an eccentric lug in the bore of the apparatus and for the non-twisting mounting of the workpiece, at least two preferably opposed receiving cones each with an interchangeable plate and indexing pin may be provided.

One example of the invention is illustrated in the drawings, in which:

Figure 1 shows the apparatus for receiving workpieces, partly in section,

Figure 2 is a side view of the apparatus in the

direction of arrow II of figure 1,

Figure 3 is a cut-away view of a transfer line, in diagrammatic illustration.

The apparatus 1 for receiving workpieces consists essentially of the foot 2, the clamping part 3 for clamping the workpiece 4 received and of the receiving part 5 according to the invention for a receiving cone 9 with interchangeable plate 6. Located in a blind hole 7 with a conically shaped, central portion 8 is the receiving cone 9, which supports the interchangeable plate 6 on the journal 10 projecting from the end face of the apparatus 1. Also provided in the interchangeable plate 6 is a second bore 11, in which a fitted bolt 12 connected to the apparatus 1 engages to prevent rotation. Provided on the end face of the interchangeable plate 6, in a position predetermined by the workpiece, is an indexing bolt 13 for receiving the workpiece in the correct position. The entire apparatus 1 is provided with two diagonally opposed receiving cones 9 with interchangeable plates 6 and indexing bolts 13, as shown particularly in figure 2. The receiving cone 9 is fixed in the bore 7 by an eccentric lug known per se (not shown). Further securing means for mounting the interchangeable plates 6 are not necessary. The eccentric lug is located in the region of the recess 17. If a new workpiece with new co-ordinates of the indexing bores is introduced into a processing machine of the transfer line of figure 3 for a machining operation, such as for example drilling, then the tools located in the processing machine do not need to be moved to the new co-ordinates, solely the exchange of the receiving cone 9 with the interchangeable plates 6 by way of the eccentric lug is required. The interchangeable magazines 16 for the interchangeable parts of the apparatus 1 are located for example in the station 15 of the transfer line 14. The mounting and clamping of the exchanged interchangeable plates 6 takes place quickly and without appreciably disturbing the machining operations in the machine. The apparatus according to the invention is particularly suitable for machining centres and transfer lines, in which resetting work for a large number of different workpieces takes place very frequently.

In the same manner as the change of interchangeable plates 6, a change of clamping shoes, supports, bearing surfaces or fixing members is also possible, by which workpieces are held on the apparatus in a fixed position during a machining process.

CLAIMS

1. Apparatus for receiving workpieces for a processing machine, transfer line, machining centre or the like, wherein in a bore with a conically shaped portion, a correspondingly constructed receiving cone can be inserted, which on its journal projecting from the end face of the apparatus comprises at least one fixture for receiving a workpiece to be machined, in the correct position.

2. Apparatus as claimed in claim 1, wherein

said fixture is an interchangeable plate with indexing bolts located respectively in a predetermined position.

3. Apparatus as claimed in claim 1 or 2,
5 wherein provided in the interchangeable plate is a second bore, in which a fitted bolt engages to prevent rotation.

4. Apparatus as claimed in claim 1 or 2, wherein the receiving cone can be fixed by an

10 eccentric lug in the bore.

5. Apparatus as claimed in any one of claims 1 to 4, wherein at least two preferably opposed receiving cones with an interchangeable plate and indexing pin are provided for receiving workpieces
15 in a non-rotary manner.

6. Apparatus for receiving workpieces, substantially as herein described with reference to and as illustrated in the accompanying drawings.